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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
09/576,179	05/23/00	GORL U	PM268103/990

000909
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IM22/1107

EXAMINER	
LEE,R	
ART UNIT	PAPER NUMBER
1713	8

DATE MAILED: 11/07/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

Offic Action Summary	Application No.	Applicant(s)	
	09/576,179	GORL ET AL.	
	Examiner	Art Unit	
	Rip A. Lee	1713	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-5 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-5 is/are rejected.

7)☒ Claim(s) 1 is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 5 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

A response to a restriction requirement was filed on October 25, 2001. The Applicants have elected the inventions of Group I, including claims 1-5, and they have requested cancellation of the claims of the non-elected restriction group (claims 6-15). The election of restriction Group I was made without traverse.

Claim Objections

1. Claim 1 is objected to because of the following informalities: That carbon black is categorized as an oxidic filler or as a siliceous filler is unclear. Carbon black contains neither oxygen nor silicon atoms. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. Regarding claim 1, the phrase "preferably" renders the claim indefinite because it is unclear whether the limitation(s) following the phrase are part of the claimed invention. See MPEP § 2173.05(d). The exemplary claim language has been used for defining the terms "R and R^1," "Alkyl," and "Alkenyl."

4. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. The claim recites, "R represent(s) an alkyl group..." and states further, "R may also represent a C_1-C_{14} alkyl..." It is unclear whether R actually includes the latter grouping.

5. Should R, in fact, "...represent a C_1-C_{14} alkyl...," then claim 1 is rendered indefinite since it contains improper Markush language. According to MPEP 2173.05(h), when materials are so related as to constitute a proper Markush group, they may be recited as, "wherein R is a material selected from the group consisting of A, B, C, and D," or "wherein R is A, B, C, or D."

6. A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949). In the present instance, claim 5 recites the broad recitation "2 to 10 mm," and the claim also recites "25 μm to 3000 μm" which is the narrower statement of the range/limitation.

Claim Rejections - 35 USC § 102

7. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-3 are rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 5,159,009 to Wolff *et al.*

The prior art of Wolff *et al.* relates to rubber mixtures containing carbon black treated with organosilicon compounds. The descriptions of structures of the three types of organosilicon compound are displayed in claim 1, and the limitations imposed therein are identical to those recited in claim 1 of the present invention. Typical loadings added to the rubber mixture lie in the amount of 5-400 phr (col. 3, line 14). The chart of raw materials used in the invention indicates that the filler can be used in EPDM rubbers. Vulcanization promoters such as zinc oxide and stearic acid are incorporated into the mixture (col. 3, line 61).

9. Claims 1, 2, and 5 are rejected under 35 U.S.C. 102(b) as being anticipated by Görl *et al.* in *KGK* Journal.

The prior art of Görl *et al.* relates to rubber/filler batches in powdered form. The article describes rubber materials such as classical SBR-types containing fillers with loadings between 40-1000 phr (p. 251). Two important classes of fillers are disclosed: carbon black and precipitated silicas (p. 251-252). Coupling agents such as *bis*(3-triethoxysilylpropyl)tetrasulfane

are used in order to achieve efficient dispersion of silica into the rubber matrix (p. 252). The particle size of the final product lies in the range of 50-1200 μm (p. 254).

Claim Rejections - 35 USC § 103

10. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

11. The factual inquiries set forth in *Graham* **v.** *John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

12. Claims 1, 2, and 5 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 4,788,231 to Smigerski *et al.* in view of U.S. Patent No. 4,704,414 to Kerner *et al.*

Smigerski *et al.* disclose a pourable powdered rubber containing filler. Synthetic rubbers such as styrene-butadiene copolymer and ethylene-propylene-diene rubber (col. 2, lines 66-68) and fillers such as carbon black and silica may be used in the present invention (col. 3, lines 26-32) for the invention. The amount of filler used ranges from 20-1000 phr (col. 3, line 34). The

particle size distribution of the product is less than 10 mm, preferably ranging from 0.050-5 mm (col. 5, lines 10-12). The reference does not disclose the use of organosilicon compounds for modifying the surface of the filler.

The prior art of Kerner *et al.* relates to rubber compatible synthetic fillers. The reference disclose the modification of silicatic fillers using organosilicon compounds of general formula $[R_n^1(RO)_{3-n}Si\text{-}(Alk)_m\text{-}(Ar)_p]_2[S]_x$ (claim 1). Note that the description of the formula is identical to that recited in the claim 1 of the present invention. The inventors show unequivocally that reinforcing properties of the filler in the polymer are improved by this chemical modification. This is reflected in increases in rheological properties such as tensile strength and modulus, as well as in improvement of performance properties such as rebound elasticity and abrasion resistance (see Examples). Therefore, it would have been obvious to one having ordinary skill in the art to use a modified silica as per Kerner *et al.* in the rubber composition of Smigerski *et al.*, and as shown in the prior art, one would have expected such a modification to provide product with optimal performance.

13. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smigerski *et al.* in view of U.S. Patent No. 5,116,886 to Wolff *et al.*

The discussion of the disclosures of the prior art of Smigerski *et al.* from paragraph 12 of this office action is incorporated here by reference. The prior art relates to a rubber powder containing filler. The reference does not disclose the use of organosilicon compounds for modifying the surface of the filler.

Wolff *et al.* disclose the modification of oxide or silicate fillers with organosilicon compounds having general formula $[R_n^1(RO)_{3-n}Si\text{-}(Alk)_m\text{-}(Ar)_p]_q[B]$ (claim 1). The oxide filler includes aluminum hydroxide (col. 2, line 39). The reference teaches the benefits of using treated fillers in rubber mixtures. One significant advantage is better processing behavior, which, in turn, saves unnecessary mixing steps and mixing time (col. 3, lines 16-25). In light of these teachings, it would have been obvious to one having ordinary skill in the art to reduce production time and cost by using organosilicon-modified oxide fillers in the rubber mixture of Smigerski *et al.* As shown in the prior art, one would have expected such a modification to provide product with optimal performance.

With respect to claims 3 and 4, the use of aluminum hydroxide as a filler is well within the generic embodiment of the prior art of Wolff *et al.* It is also well known in the art that aluminum hydroxide may be used as a flame retardant. Therefore, aluminum hydroxide filler would inherently confer reinforcing and flame retardant properties to the rubber mixture.

14. Claims 1-4 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent No. 5,159,009 to Wolff *et al.* in view of U.S. Patent No. 6,277,908 to Yamamoto and U.S. Patent No. 5,216,055 to Goerl *et al.*

The discussion of the disclosures of the prior art of Wolff *et al.* from paragraph 8 of this office action is incorporated here by reference. In summary, the prior art relates to a composition containing rubber and organosilicon-modified filler. The reference does not disclose the use of flame retardant materials in the composition.

The desire to impart flame retardant properties to a material is apparent. The Yamamoto reference teaches the use of magnesium hydroxide and aluminum hydroxide as effective flame retarding agents in synthetic polyolefins (claim 1 and col. 4, lines 56-63). Goerl *et al.* disclose the use of magnesium and aluminum hydroxides as reagents of choice for imparting flame retardant properties to synthetic and natural rubbers (col. 1 – col. 2 and claims). Therefore, it would have been obvious to one having ordinary skill in the art to incorporate magnesium hydroxide or aluminum hydroxide into the rubber material of Wolff *et al.* in order to render it flame retardant.

15. Claims 1-5 are rejected under 35 U.S.C. 103(a) as being unpatentable over Görl in view of U.S. Patent No. 6,277,908 to Yamamoto and U.S. Patent No. 5,216,055 to Goerl *et al.*

The discussion of the disclosures of the prior art of Görl from paragraph 9 of this office action is incorporated here by reference. In summary, the prior art relates to a composition containing rubber and organosilicon-modified filler. The reference does not disclose the use of flame retardant materials in the composition.

The desire to impart flame retardant properties to a material is apparent. Yamamoto teaches the use of magnesium hydroxide and aluminum hydroxide as effective flame retarding agents in synthetic polyolefins. Similarly, Goerl *et al.* disclose the use of magnesium and aluminum hydroxides as reagents of choice for imparting flame retardant properties to synthetic and natural rubbers. Therefore, it would have been obvious to one having ordinary skill in the art to incorporate magnesium hydroxide or aluminum hydroxide into the rubber material of Wolff *et al.* in order to render it flame retardant.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rip A. Lee whose telephone number is (703)306-0094. The examiner can normally be reached on Monday through Friday from 9:00 A.M. to 5:00 P.M.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu, can be reached at (703)308-2450. The fax phone number for the organization where this application or proceeding is assigned is (703)305-3599. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)308-0661.

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November 02, 2001

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